Distortions in the History of Radio

Following my article on Popov [1], several correspondents commented on the topic in these pages [2]–[5], a number of articles appeared in technical publications in the British Commonwealth [6], [7], and a lively correspondence ensued in *The Observer* in London [8], precipitated by a remark by the novelist Kingsley Amis (in a review of three books of Soviet science fiction) about the "ideological chauvinism which insists on Alexander Popov's inventing of the radio" [9]. The first subsequent Soviet contribution to the international literature of the subject [10] took no notice of my article, even though eight months had elapsed since its publication. However, a reply (or rather an attack) appeared in a Soviet technical journal that is made available in English by the IEEE under a special program supported by the National Science Foundation [11].

The author, V. I. Shamshur, charitably suggests that I am merely confused, adding parenthetically that he shall not make "a presumption of deliberate intent or actual ignorance" on my part. He may rest assured on the first score: to the extent that an impartial historian may permit himself personal sympathies, mine would have been naturally from the first on the side of that preoccupied scientist (working against substantial odds in an obscure Service laboratory in Russia) whose every recorded pronouncement attests to a modesty that would certainly be outraged by the claims later made in his behalf—rather than on the side of the brash amateur backed by immense financial resources, quite authoritarian by nature, who was to become a prominent member of the Fascist party in Italy. As to ignorance, I cited nearly 100 sources (and studied many others besides) to give a fairly complete survey of the literature of the subject, including some sources that appear in no Soviet bibliography; the only additional references that Shamshur could array are two descriptive accounts dated 1914 [12] and 1939 [13] and a more recent article on international patent law by a Soviet author, whose country is not a signatory to the international conventions on copyrights *or* on patents.

Lack of understanding could be more reasonably imputed to Shamshur, judging from several mistakes arising from imperfect translation. Two instances will suffice. First, I introduced a portion of a letter that Oliver Lodge wrote to the Russian Physical Society in 1909 by saying that the letter "was in part reproduced as follows," which Shamshur takes to mean "not in full, but only in part" (*ne polnostiu, a lish chastichno*); in consequence, he takes me to task for my "inadequate study of the historical documents." It goes without saying that I studied the original, as should be obvious from my faithful reproduction of the typographical peculiarities in the short extract that I cited ("signaling" occurs twice, with different spellings; "you" is capitalized; "an" is left out). Second, the opening paragraph of my final section read, "In evaluating the Soviet claim that Popov 'invented radio,' we should recall that, patent law apart, priority of invention may be established on one of two bases: 1) priority of printed publication and 2) subsequently unearthed historical evidence." Shamshur "quotes" this passage as, "patent law defines the priority for an invention on two principles: priority of printed publication and unquestionable historical evidence," which is certainly not what I said, and he goes on to say that I am insufficiently versed in the fundamentals of patent law—which would be a just estimate if I had made the statement that he ascribes to me through faulty translation!

Five points made by Shamshur require direct refutation.

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1) *By describing Marconi's contribution first and Popov's second, I cleverly distort the chronology and the emphasis.* In fact, all relevant dates are supplied; Popov is mentioned first, as well as in the title; and since the portion of the text devoted to him is at least four times as long as that on Marconi, I put the shorter account first, purely for convenience, and certainly without any malice aforethought.

2) *Marconi's patent specification of June 2, 1896 supposedly disclosed no details of a system of radiotelegraphy that had not been disclosed previously by Popov.* In fact, Popov described a receiver only, intended (and later used) for recording atmospheric disturbances, and as an afterthought he added a final sentence suggesting its use for communications by "rapid electric oscillations, as soon as a source of such oscillations possessing sufficient energy will be discovered"; whereas Marconi's specification (the first page of which is reproduced in my article and on the cover of that issue of the PROCEEDINGS) describes such a transmitter first and then the receiver, both in considerable detail, all specifically aimed at "transmitting electrical impulses and signals."

3) *My statement that Marconi's patent was never successfully challenged "does not correspond to truth" since the patent was never registered in Russia and since "Prof. Slaby, who was familiar with Popov's work . . . would not permit the German patent office to issue a patent to Marconi."* More translation trouble: failure to register a patent is not a challenge—the inventor may simply decide not to follow through on a patent application owing to external circumstances. Slaby was allowed to witness Marconi's 1897 Post Office demonstrations (much against Marconi's wishes)[1] and then returned to Germany to develop the Slaby-Arco system with his pupil von Arco; their efforts, combined at the Kaiser's request [14] with those of K. F. Braun at Siemens & Halske, led to the formation of the Telefunken company, whose German patents clearly infringed on Marconi's but, according to the economic historian Sturmey, "In Germany the support of the government for the Telefunken system made patent litigation expensive and risky for a foreign plaintiff alleging infringement. In 1912 . . . Telefunken admitted infringement and an arrangement was made" [15]. The implication that Slaby prevailed upon the German patent office to refuse a patent to Marconi because of Popov's work is very likely nonsense and in any case irrelevant; before he became embroiled in patent litigation, Slaby freely admitted his debt to Marconi. "What I saw," Slaby wrote about the 1897 demonstrations in 1897, "was actually something new, Marconi had made a discovery; he worked with resources whose full significance had not been recognized by anyone before him" [16].

4) *I have ignored "unassailable arguments" in support of Popov's priority.* To cap this contention, Shamshur cites an extract from a local newspaper at the time of Popov's first demonstration speculating that "the theoretical possibility of signaling over distances without conductors, after the manner of the optical telegraph but with the help of electric rays, serves as the motive for all these experiments." In fact, I also cited this very passage and source (footnote 77), pointing out that the journalist's conjecture speaks of the *theoretical* possibility.[2] It could not have been anything more than speculation; Soviet sources stress again and again (as I noted in my original contribution) that Popov did not make such an application explicit because he was under orders from the Russian Navy to say nothing about radiotelegraphy.

5) *I have kept silent about "numerous other pieces of evidence and direct quotations indicating the priority of Popov in the invention of radio."* In fact, Shamshur really has to scrape the barrel of documentary evidence to find two new references. One, which merely states that Popov "was really the first to take the coherer out of the laboratory or lecture room," comes from a nontechnical, descriptive book that bears the subtitle "A popular account of the past and present of wireless telegraphy and telephony which assumes no previous knowledge of the subject on the part of the reader."[3] The other is a silly diatribe against Marconi by one Loftin in a trade journal, Radio-craft [13]. The only one of Loftin's statements cited by Shamshur is that "of 350 patents belonging to the Marconi firm in 1917, only three were in Marconi's name," which is manifest nonsense;[4] the most casual survey of Marconi's patents would reveal several dozen during that period in Britain alone. Loftin was the expert retained by the U. S. government in a multimillion-dollar suit brought against the government by the American Marconi company and thus hardly an unprejudiced observer; moreover, considerable doubt has been also recently thrown on the man's reliability in another context [17].

It is regrettable that my Soviet interlocutor has seen fit to resort to a personal attack instead of providing fresh arguments to refute my amply documented thesis that 1) Popov was not the first to describe a system of radiotelegraphy in print and 2) that he was *at the most* contemporary with Marconi (and probably later) on the basis of unpublished historical evidence.

By way of postscript, I might add that in my original study I left out some supporting evidence that did not meet the most rigorous test of unquestionable authenticity. One episode that perhaps deserves mention after all is a meeting between Marconi and Popov, especially since I have found no hint of that fascinating event in the Soviet literature. In August 1902, Marconi visited Kronstadt, the naval base near St. Petersburg; his friend and later associate, Luigi Solari, wrote the following account of it:

"At that time Marconi and I were on board the cruiser *Carlo Alberto* which had proceeded to Cronstadt on the occasion of the visit paid by the King of Italy to the Czar of Russia. The whole of the Russian Press then published enthusiastic articles on the wireless communication established by Marconi for the first time between Russia and Britain (the *Carlo Alberto*, in Russian waters, and Poldhu, Britain).

"In view of this great event, Prof. Popov came on board the *Carlo Alberto* to pay tribute to Marconi.

"Marconi and I were close to the gangway of the *Carlo Alberto* to receive Prof. Popov, who, as he stepped on board, expressed himself in these exact words: 'I should like to greet the father of wireless telegraphy.' Marconi shook him warmly by the hand, took him down to the admiral's cabin and asked him about his experiments. Popov (who was then about fifty years of age) mentioned that he had conducted some experiments in 1895 for recording electrical discharges in the atmosphere, but stated most definitely that he had never effected any transmission of electric waves before Marconi, or any wireless telegraphy communication, and that his research had been confined to electrical discharges in the atmosphere" [18].

Marconi's daughter, in the recent biography of her father, describes the same incident. "One day a Russian caller arrived at the foot of the *Carlo Alberto's* gangway and said to the Italian sailor who helped him aboard, 'I want to pay my respects to Marconi, the father of wireless.' That caller was Alexander Stepanovitch Popoff, the Russian scientist who had discovered that the coherer could be used to predict thunderstorms, and who was widely credited with the invention of wireless" [19]. Elsewhere in her biography she vouchsafes us the further information that when Marconi was married, Popov sent him a sealskin coat and a silver samovar as wedding presents [20].

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[4] ——, "Admiral Sir Henry Jackson," PROC. IEEE (*Correspondence*), vol. 52, pp. 440–441; April, 1964.

[5] H. Unz, "Marconi and Popov," IRE TRANS. ON EDUCATION (*Correspondence*), vol. E-5, pp. 195–196; September/December, 1962.

[6] See, for instance, "The Popov claim," *Electronics Weekly*, p. 10; June 12, 1963. Also, "Popov v Marconi claim," *Mingay's Electrical Weekly* (Sydney, Australia); January 11 and March 8, 1963.

[7] R. L. Smith-Rose, "Marconi, Popov, and the dawn of radiocommunications," *Electronics and Power*, vol. 10, pp. 76–79; March, 1964 and p. 128; April, 1964.

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[1] Marconi said later: "I was practically compelled to allow my experiments . . . to be witnessed in all their details by Prof. A. Slaby. . . . Previous to these tests I did not know Prof. Slaby, nor had I expressed the slightest desire to allow him to witness my experiments, but did so out of courtesy to the British Post officials, who introduced him, and who made the request." *Elec. Rev.* (London), vol. 84, p. 179; February, 1919.

[2] It is perhaps significant that in the article by Tchistiakov cited above [10] this passage is mistranslated as "The aim (*sic*) of all these experiments is to show that it is theoretically possible (*sic*) to transmit signals over a certain distance without the use of conductors, in other words, after the fashion of visual telegraphy but with the aid of electric radiations."

[3] Gibson [12]. In the same paragraph, Gibson says that Popov "made no progress until he heard of Marconi's success in England, whereupon he (Popoff) set about making more sensitive detectors, and in 1897 he had succeeded in signalling over a few miles."[4]

[4] Actually, Loftin speaks of four.

[8] *The Observer* (London); April 21, April 28, May 12, and May 19, 1963.
[9] Kingsley Amis, "Science fiction from Russia," *The Observer* (London); April 14, 1963.
[10] N. Tchistiakov, "Popov and the birth of radio," *Telecommunication J.*, vol. 30, pp. 172–175; June, 1963.
[11] V. I. Shamshur, "Against distortion of the history of radio," *Elektrosvyaz*, vol. 18, pp. 70–72; April, 1963 (in Russian). Published in English in *Telecommunications and Radio Engineering*, pt. 1, pp. 73–77; April, 1963.
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[16] A. Slaby, "Die Funkentelegraphie," Leonhard Simion, Berlin, Germany, p. 18; 1897.
[17] B. F. Miessner, "On the Early History of Radio Guidance," San Francisco Press, San Francisco, Calif.; 1964.
[18] "Who invented the aerial?" *Wireless World* (editorial), vol. 53, p. 338; September, 1947.
[19] D. Marconi, "My Father, Marconi," McGraw-Hill Book Co., New York, N. Y., p. 132; 1962.
[20] *Ibid.*, p. 169.